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ABSTRACT

Lowenfeld (1945) developed a series of six instruments which could be used to identify perceptual abilities. For this study, the visually oriented person was defined as the objective viewer of the environment, while the haptic person was defined as a person who uses the eyes only when forced to do so and relates to his environment subjectively. He tested an adult sample using the instruments and obtained 1128 reactions: 47% were visual, 23% were haptic, and 30% could be identified as being neither visual nor haptic. However, Lowenfeld failed to clearly state his sample size. This paper includes a mathematical evaluation of that sample size and a review of how others since 1954 have interpreted the sample. It is concluded that the sample size was 224 and not 1128. Lowenfeld, and Lowenfeld and Brittain; however, in later writings claim the sample size to be 1128. It is pointed out that decisions made on the basis of a sample of 224 would be somewhat different than those based on a sample of 1128. (Author/MV)

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VISUAL-HAPTIC ABILITIES IN LOWENFELD'S ADULT SAMPLE AS MEASURED BY SIX INSTRUMENTS: AN EVALUATION OF THE SAMPLE SIZE AND AN OVERVIEW OF HOW OTHERS HAVE INTERPRETED IT

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Introduction

The world famous art educator and researcher Viktor Lowenfeld, while working with blind and sighted students in Vienna, Austria, identified two types of perceptual aptitudes, Lowenfeld (1939). He named these perceptual aptitudes the visual and the haptic. The extremes of each type, according to the author, were identifiable by a specific set of characteristics. Additionally, the extremes of each type occupied the antipodes of a continuum. Individuals who exhibited varying amounts of each set of characteristics were located somewhere between the antipodes.

The visually oriented person was the objective viewer of the environment. The environment was viewed from the vantage point of an unattached viewer. When asked to respond to gerunds such as climbing or walking, this type might be expected to reply with the word, mountain or some other noun which suggested a lack of attachment. If the visually oriented person were to view a scene, he/she would first be able to obtain an overview, followed by the disection of the scene into its copmonent parts and then the synthesis of a new whole. From this it follows that this type of individual could integrate partial impressions. For example, when riding in an automobile, one does not see a complete panorama but a series of the parts of that panorama. The visual individual is able to integrate those portions of the panaroma into a coherent whole. Visuals use their eyes as the main mode of sensory input. Situations preceived by the kinesthetic tactile mode are easily converted irto visual impressions. Finally, art work of the extreme visual would be expected to be realistic.

The haptic, although of normal visual acuity, uses the eyes only when forced to do so. Normally the haptic or active touch mode is the preferred sensory input. When information is taken via the kinesthetic tactile mode is not converted to a visual impression but is left in its original form, a condition with which the haptic is quite happy or satisfied. All relationships between this type of individual and the environment are of a subjective nature. The haptic person constantly enters into value relationships with his/her environment. For example, when asked to respond to gerunds suggesting a need to apply human effort, words such as climbing or walking, the haptically perceptive individual might be expected to reply with hard, difficult or tiring. Extreme haptics find it difficult, if not impossible, to obtain an overview of a scene, and additionally, quickly become lost in the scene's details. The partial or successive impressions of this type of individual fail to be integrated into a coherent whole; they remain disarticulated. These persons, when dealing with art forms, would be expected to tend toward the abstract mood.

Lowenfeld (1939) named a third group. This group he labeled the intermediates or indeterminates. These were the individuals who could be identified as being neither clearly visual nor clearly haptic.

The Genesis of the Sample Size Problem

Lowenfeld (1945) developed a series of six instruments which could be used singly or unioned to ascertain an individuals

visual-haptic orientation. These instruments were titled, (1) Test of Integration of Successive Impressions, (2) Test of Subjective Impressions, (3) Test of Visual vs Haptical Word Association, (4) Think of a Building Test, (5) Test for Visualization of Kinesthetic Experiences, (6) Test of Tactile Impressions. The author administered the test series to an adult sample, and reported that of 1128 reactions to the instruments, 47% of the Ss were clearly identified as being visual, 23% were haptic, and 30% received a score which allowed them to be tagged as being neither clearly visual nor clearly haptic. From this would seem to follow that the sample size was 1128; however, a definitive statement concerning the sample size is illusive.

Analysis of the data suggests that possibly the sample size was 224. On page 104 of the 1945 article, the author mentions that 224 adults were administered the Test of Successive Impressions. On page 107 , it is stated that 224 Ss the Test of Visual vs Haptical Word Association. Table II on page 106 lists 176 Ss responding to the Integration of Successive Impressions test, 142 Ss responding to the Test for Visualization of Kinesthetic Experiences, and 138 Ss responding to the Test of Tactile of Tactile Impressions. Finally, wording at the top of page 106 indicates that the same 224 Ss who were administered the Test of Subjective Impressions, were administered the Picture a Building Test. These data suggest that Lowenfeld probably administered his series of instruments to a sample of 224 and further that for some reason, perhaps absences, some of the tests

were administered to fewer individuals than the entire sample.

The 1128 reactions seems to have arisen from the simple sum of the classified reactions to each of the instruments. In table III on page 107 of the 1945 document, the following data are provided.

Visual	530
Haptic	263
Indefinite	321
Discarded	14
	1128

If each of the instruments were administered to the sample in the manner suggested by Lowenfeld, 1128 reactions would be obtained, see table 1.

TABLE 1
Hypothesized Results if the Tests Were Administered According to Lowenfeld

Test	N	Total
1. Test of Visual vs Haptical Word Association	224	224
2. Test of Subjective Impressions	4	224
3. Test of Integration of Successive Impressions	176	176
4. Think of a Building Test	224	224
5. Test for Visualization of Kinesthetic Experiences	142	142
6. Test of Tactile Impressions	138	138
Totals	1128	1128

The conclusion to which one is led, based upon careful analysis of the 1945 paper is that Lowenfeld's sample was 224.

The History of The 1945 Sample Size in Later Literature

Whether the data contained in Lowenfeld's 1945 work is really a problem, of course, first is based upon the conclusions

drawn from these data, and secondly upon how the results are applied. After close analysis, the reader might conclude, as has been done in this writing, that of a sample of 224, about 47% were identified as being visually oriented, 23% as being haptically oriented, and 30% as being neither clearly visual nor clearly haptic. Suppose the reader; however, had not read and analyzed the 1945 work. Suppose he/she had read the 1128 figure in another source and assumed the figure to be sample size. The answer here is unknown but it certainly is possible, not having the original, to operate and make decisions based upon a sample size of 1128.

Lowenfeld (1949) page 132 specifically states that in his 1945 work;

> The result of an investigation in which I tested 1128 subjects by means of specifically designed tests for visual or haptic aptitude was as follows: 47 per cent were clearly visual, 23 per cent were haptic, and 30 per cent either received a score below the line where a clear identification was possible, or were otherwise not identifiable.

Lowenfeld (1957), page 263, provides the same statement as was quoted above. Lowenfeld and Brittian (1965), page 259, have altered the statement somewhat from that provided above; however, the information which is provided is identical. By the time one reaches Lowenfeld and Brittian (1975), page 276, the wording has changed but the results are the same.

> Using 1128 subjects, Lowenfeld found that 47 per cent had clear visual tendencies, whereas 23 per cent could be scored haptic and 30 per cent received a score somewhere in between.

From these writings it seems that perhaps Lowenfeld, in

writing the manuscript for his 1949 publication, probably included the word subjects when in reality he meant reactions. Whatever the case, the 1945 sample size has been and continues to this day to be transmitted through the literature as 1128 and not 224 as suggested above.

The Use by Researchers of Lowenfeld's 1945 Study

The paramount question remains, what types of decisions have been made based upon a sample size of 1128. Also, one might question whether the same decision would have been made concerning research or teaching if the user or researcher had assumed the 1945 sample size to be 224. The answers to these questions, of course, are pure speculation; however, it does seem instructive to look closely at how the results of the results of the original work (1945) have been quoted in work other than that of Lowenfeld.

Flick (1960), page 63, discusses the original Lowenfeld (1945) research. Flick points out that, "The test was published by the American Journal of Psychology, January 1945, page 112. Lowenfeld says of it....." Flick then goes on to quote Lowenfeld (1952); however, fails to point out that his quote is of the 1952 vintage and not 1945. The quote included in Flick's (1960) work is provided below.

> The result of an investigation in which I tested 1128 subjects by means of specifically designed tests for visual or haptic aptitude was as follows: 47 per cent were clearly visual, 23 per cent were haptic, and 30 per cent either received a score below the line where a clear identification was possible, or were otherwise not identifiable.

It should be pointed out that if after having read one of Lowenfeld's documents published after 1945, the reader did not read the 1945

paper in the original, he/she would be forced to quote the sample size as 1128.

Drewes (1958), page 69, says of Lowenfeld's 1945 research;

> The research of this investigation in which 1128 subjects were used showed: 47% clearly visual, 23% haptic and 30% not clearly identified.

Erickson (1963), page 28, says of the research being discussed;

> In the same article Lowenfeld reports that from 1128 reactions to the tests, 47 per cent of the subjects were identified asbeing clearly visual, 23 per cent haptic, and 30 per cent intermediate.

The reader should note the difference between Erickson's wording and those which have come from the two previous researchers. He indicates 1128 reactions, not 1128 subjects. There however, is no indication in Erickson's writing that the sample size might have been somewhat less than 1128.

Janssen (1957), page 8, says of the test battery;

> From the 1128 reactions with this battery of tests he classified 47 percent as clearly visual, 23 percent as clearly haptic and 30 percent either received a score which was below the line where a clear identification was possible or otherwise not identifiable.

Again, the only change is the use of the word, reactions instead of the word sample. Janssen, in her writing, makes no suggestion of what she thought the sample size might be.

Rouse (1963) is one of the first persons to seriously question what Lowenfled's 1945 N might have been. She pointed out in her writing that 1128 responses did not necessarily mean that the N was that size. She further pointed out that Lowenfeld was unclear and inconsistent in reporting the study in question, and that perhaps the sample size was 224. Further suggested in this

writing is the idea that the sample size may have been reduced in subsequent tests in such a combination that the total number of responses was 1128 even though the actual sample size was 224. Rouse goes on to point out that the doubt about the sample size has important implications for the reliability and the conclusions to be drawn from the study.

Franchak (1971), page 31, says;

> as a result of his testing 1128 adult subjects, the following findings were reported: (1) 47 per cent were clearly visual, (2) 23 per cent were haptical, and (3) 30 per cent either received a score below the line where a clear identification was possible or were otherwise not identifiable.

Howell (1972), page 19, says of Lowenfeld's 1945 study;

> From this test battery, Lowenfeld obtained 1128 reactions and from these data he reported the following results: 47% were clearly visual; 23% were clearly haptic; and 30% were not identifiable (indefinite).

He was aware that the size of Lowenfeld's sample was questionable. In his writing, shortly after the inclusion of the 1945 research results, he makes mention of the Rouse discussion cited above.

Webb (1974), page 16, again tells us that Lowenfeld's N was 1128.

> of his 1128 subjects, 47% were found to be clearly visual, 23% to be haptic, and 30% were not clearly identified.

Ausburn, L. (1975) does not mention Lowenfeld's 1945 research; however, she does say that;

> The following theoretical distribution of perceptual types in any population has been developed; visual 50%, indefinite 25%, haptic 25%.

What led the author to make this generalization is unknown. The fact that it was made; however, leads to some serious questions, most of which have already been mentioned.

From the information unearthed to this point, one has just cause to wonder what decisions Wiggin (1953), Erickson (1964, 1967, 1969), and Ausburn, F. (1975a, 1975b) made, based upon Lowenfeld's 1945 N. Were their Decisions to persue research based upon the results of a study whose N they might have interpreted as being five times greater than it perhaps really was.

Discussion and Conclusion

The analysis presented here clearly suggests that Lowenfeld's N in his 1945 research was 224 and not 1128. Why Lowenfeld may have changed the word reactions to sample when he reported the results of his 1945 work in his 1949 work can never be answered. The change was perhaps not the result of Lowenfeld's hand but perhaps that of a publisher's editorial reveiwer, a mistake which easily might have occurred. It might have seemed much clearer to the naive editor, since the context suggests sample, to change the word responses to sample. However, if this were the case, it is then necessary to question why the author failed to make the necessary correction. If the correction were missed in the 1949 publication, then a question arises as to why the correction failed to be made in subsequent writings by Lowenfeld.

The references sections of the theses, dissertations, and research articles cited are also revealing. In most of these works, Lowenfeld is cited for his 1945 work as well as one or

more subsequent works. From this it might be assumed that the authors,of the studies which are cited, would have read both the 1945 paper and one of the later works. However, a dilemma quickly surfaces if we attempt to draw this conclusion. If, in fact, the scholars who have conducted these studies did read Lowenfeld both in 1945 and later, then why did they they fail to see the sample size question as did Rouse (1963) and Howell (1972). Obviously, the wording from the writing of Erickson (1963) and Janssen (1957) indicates that they had read the 1945 paper, but what of the other scholars.

One strong possibility exists concerning the answer to the question which was last raised. First, the 1945 research is cited in all of Lowenfeld's later work. Probably those scholars, except in the case of Flick and Franchak who are mentioned below, read one of Lowenfeld's works published after 1945, quoted that work and then cited both the work which they had read and the 1945 work. The reader of their theses, dissertations or research articles would be led to conclude the writer had read and was familiar with both the 1945 research and subsequent Lowenfeldian publications.

Flick (1960)used a number of Lowenfeld's tests in his dissertation, thus it would seem to follow that he had attended to the 1945 paper. However, Lowenfeld was Flick's dissertation advisor, making it quite likely that Flick was given copies of the instruments by Lowenfeld himself. If this were the case,

then Flick although cognizant of the 1945 research, might never have read it, and thus followed the course he did.

Franchak (1971) also used some of the 1945 instruments in his dissertation. In Franchak's case, it appears safe to assume that the 1945 research was considered but when chapter two of the dissertation was written, a document of later vintage was used as a reference.

The problem highlighted in this writing raises serious doubts concerning the literature searching practices of not not only the scholars mentioned herein but of all schclars. The conclusions drawn from what seemingly was a sample of 224 in 1945 have grown over the years to become, with Ausburn (1975), a theoretical distribution which might be expected to exist in a random adult population. Thus over the years, a generalization has replaced the results of one research study of questionable size. If the trend continues, it might be expected sometime in the future that the generalization of 1975 will metamorphose and become law.

In the final analysis, it should be made clear that these data in no way challenge the existence of the visual-haptic continuum.

In conclusion, the whole sequence of events is at times laughable yet always sad. It is sequences of events such as these which bring sarcastic criticism to bear upon social science research in general as well as social science researchers.

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